IDE Search Engine

A search engine to find coding solutions right in your IDE

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ABSTRACT

Whether you are a novice or advanced programmer, everyone has gotten stuck writing code and has needed some help. Most will go to Google for answers or Stack Overflow to see code solutions, but many times, it is difficult to find exactly what you are looking for. While Google is helpful for looking up definitions, terminologies, etc., there is so much information out there that it can be overwhelming. Furthermore, when working on a program or project in your IDE, it can be annoying to have multiple tabs open looking up solutions to your problems. For example, if you are coding and you do not know how to construct a for loop, you must open a browser and find a website that clearly defines how to make one. The solution to all these problems would be having a search engine that lives directly inside the IDE. The search engine would be for a wide variety of programming related questions, such as simple definitions as well as helpful solutions to complex programs. Furthermore, it would be advanced enough so that the engine could see what you are working on, and it would tailor its results to your exact needs. Not having to leave the IDE as well as the search engine providing useful feedback would make any software engineer's life much easier.

INTRODUCTION

Having issues with your program happens time and time again, whether it is a bug or simply not knowing how to instantiate something. For those that are more basic programmers, it can be discouraging having to look up how to do every little thing in a language they are not familiar with. For example, a user might have to look up how to simply create a variable. However, with the search engine, a clean and aesthetic window would pop up in which it asks for your query and uses AI technology to see the project you are working on. It will then give you an answer and explain how it came to that conclusion. So, say you were implementing part of a Java project that required removing a duplicate number from an array, but you can't comprehend how to remove something from it since it is static. In this case, the engine would see the method you are working on and would tell you that you need a count variable, for example, that will keep track of where the duplicate number is, and a loop that will replace that index with a number further in the array. It would show you how to implement it and why it is doing it that way. This tool is so important, because many times when beginner coders run into an issue, they might be discouraged and not want to continue trying to solve the problem. Having a convenient search engine would help make programming much more enjoyable and would also give helpful explanations so you are learning at the same time. Similarly, for an advanced programmer that might not need simple explanations or definitions, the engine can still be used to look up how to fix a very specific bug or to debug code for you to see what the error is. This will prevent a software engineer from wasting time on a small bug when they could be implementing other aspects of the project. In both scenarios, the engine would be extremely helpful and would make coding more enjoyable for everyone.

RELATED WORK

While having a search engine directly inside the IDE is a unique idea, the concept stems from existing engines and websites that are out there including AI software such as ChatGPT and other resources like Stack Overflow. The first related work is Stack Overflow, which helps people find programming answers that they need by simply looking up a similar question or posting a question with code on the website. In turn, other people will respond to the question thread with relevant help and coding solutions [1]. Stack Overflow has proved itself to be a very useful resource for many programmers, however an issue seems to be that there is too much information on the site and a lot of complex code and solutions that might confuse a beginner or even intermediate programmer. Another relevant software engineering tool is ChatGPT. While it is generally advised to steer clear of AI software for writing code since it does not help you learn if you use it to simply write code for you, ChatGPT can be useful for explaining how code works or for understanding terminology. ChatGPT is a language processing tool that is driven by AI technology

and can answer questions and assist you with tasks [2]. ChatGPT can be useful if you need to quickly figure out how to write some code and it can also help debug code that you are working on. The downside is ChatGPT can also be spotty, and the AI technology might result in incorrect results. However, combining these two resources and putting it into one search engine inside an IDE would solve many of the problems that people face when trying to look up how to fix their code.

SWE PROCESS

The process we have selected for completing this project is an Agile approach, specifically having Scrum meetings and sprints. Since this is a group project with a complex goal in mind, having Scrum meetings would enhance collaboration and make sure that we are all on the same page in terms of design and implementation. Having designated sprints in which a set amount of work will be completed will also help with reaching specific deadlines and making sure that we make the necessary progress on the project. Having daily Scrum meetings, whether they be in person or over text or call, will help make sure that every team member is doing the work they need to be doing and making sure they we all communicate our obstacles and progress. Furthermore, using this method will make sure that the project is collaborative and the work is incremental, so we can complete the project in an efficient manner.

REFERENCES

[1] Empowering the world to develop technology through collective knowledge. Stack Overflow. (n.d.). https://stackoverflow.co/

[2] What is CHATGPT and why does it matter? here's what you need to know. ZDNET. (n.d.). https://www.zdnet.com/article/what-is-chatgpt-and-why-does-it-matter-heres-everything-you-need-to-know/